Solution Datasheet

Remote Manhole Water and Wastewater Level Monitoring

Effective remote monitoring of manhole water and wastewater levels is crucial for maintaining the health and efficiency of urban water infrastructure systems, reducing the risks of overflows and environmental pollution.

CHALLENGE

Manholes are essential for managing water and wastewater systems in urban areas. However, monitoring water levels and wastewater levels in these manholes can be challenging due to limited access, harsh environments, and the need for regular manual data collection. This makes it difficult to maintain efficient operations, prevent overflows, and avoid costly damage to infrastructure.

SOLUTION

10Sorex's battery-operated Submersible Level Sensors with IP68 water resistance and NB-IoT technology offer a comprehensive solution for remote manhole water and wastewater level monitoring. These ruggedized sensors are designed to withstand harsh industrial applications, ensuring reliable performance even in demanding conditions. The IoT sensors transmit near real-time data every few hours, allowing for prompt response and informed decision-making.

The benefits of using this approach include:

- Improved safety and efficiency by eliminating the need for manual data collection in hazardous environments.
- Continuous monitoring, providing timely alerts in case of potential overflows or infrastructure issues.
- Near real-time data transmission for quick response and decision-making.
- Reduced maintenance costs and labor requirements.

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- IP68 water resistance for reliable performance in submerged conditions.
- Long-lasting battery life, suitable for remote and hard-to-reach locations.
- Environmentally-friendly NB-IoT technology with low power consumption and minimal interference.

By adopting 10Sorex's Submersible Level Sensors with IP68 water resistance and NB-IoT technology, municipalities and utility companies can effectively monitor and manage their manhole water and wastewater levels, ensuring the safety and efficiency of their infrastructure while reducing costs and minimizing environmental impact.

Battery Operated | Ruggedized Design | Easy Install | Pre-Configured | Secure | Quick ROI

TECHNOLOGY

10Sorex employs cutting-edge communication technology by utilizing the LTE Cat M1 protocol, which operates on 4G and 5G cellular networks, making it suitable for mobile and stationary monitoring applications. However, its remarkably low power consumption and superior penetration rate, specifically designed for industrial solutions, sets it apart. Narrowband Internet of Things (NB-IoT) and LTE Cat M1 are advanced communication technologies that offer significant advantages for monitoring applications. These technologies provide efficient and reliable connectivity for IoT devices, allowing for seamless communication between our sensor and remote monitoring systems. NB-IoT and LTE Cat M1 are known for their low power consumption, enabling prolonged battery life for the devices, which is crucial for remote or hard-to-reach areas. Moreover, these technologies offer excellent penetration capabilities, allowing for reliable communication even in challenging environments, such as underground or remote locations where devices are often deployed. NB-IoT and LTE Cat M1 also provide secure and scalable connectivity, enabling robust and cost-effective solutions for monitoring applications in various industrial sectors, including agriculture, utilities, logistics, and more.

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SENSOR TECHNICAL SPECIFICATION

• Range (m)	**10**
• Accuracy (mm) (combined linearity, hysteresis, repeatability)	±5
• Resolution	Sub mm
• Sensor Minimum Distance (cm)	0 ~ 20
• Process Pressure (bar)	-1 to 3
• Frequency (GHz)	80
• Beam angle (°)	8
• Compensated Temperature °C	-20 ~ +60

Power

• Power Supply	Built-in Replaceable Lithium Battery, External Power option
• Rated Voltage (V)	3.6
• Battery Lifetime	5,000+ readings and 5,000+ transmission (With UDP protocol/ More than 10 years for most applications)

Physical Specification

• Materials	Enclosure: POM, Sensor Head: PVDF, PA6 and Fiberglass
• Weight (g)	~700
• Protection Rate (-)	IP68, UV protected

Communication

• SIM Card Type	4FF Nano-SIM, from any Network Provider
• Firmware Update	Over The Air, Locally via Wireless Connectivity
• Sampling Period	Configurable via downlink (default 4 hours)
• Power Consumption	Power Saving: < 5uA, Transmission: < 220mA
• Communication Standards	Cat-NB1 (NB-IoT), Cat-M1, (option of back support by GPRS)
• Communication Bands	B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 and B39
• Data Rates	Cat-M1: 375Kbps (DL)/375Kbps (UL) NB-IoT: 32Kbps (DL)/70Kbps (UL)
• TX Power	23dBm
• Min Receiver Sensitivity	Cat-M1: -107dBm NB-IoT: -113dBm
• Antenna	Internal (Default)/ External (optional) (customized options available)

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PLATFORM FEATURES

10Sorex's software platform is a comprehensive and user-friendly solution specifically designed for diesel delivery management. The platform offers a wide range of features tailored for diesel delivery operations, including real-time data visualization, customizable alerts and notifications, historical data analysis, and predictive analytics. It provides users with a holistic view of their diesel delivery assets, allowing them to make data-driven decisions for optimal fuel management. The platform is accessible via web browsers and mobile devices, providing convenient remote access to critical information anytime, anywhere. 10Sorex's software platform is designed with a user-centric approach, offering intuitive navigation and a user-friendly interface for easy setup and configuration. With its advanced features and ease of use, 10Sorex's software platform empowers users to effectively monitor and manage their diesel delivery operations in remote areas, ensuring efficient and sustainable fuel resource management.

- Encrypted ultra-low power communication protocol
- Advanced device inventory
- Integration APIs for enterprise systems
- Multi-tenant role-based access control
- Data export and import
- White-label platform for enterprise runs on private account
- Variable alarm setting for high and low thresholds and multi-channel alerting
- Sampling and transmission interval configuration
- Transmission condition configuration
- Other configurations and customization available on request


Encrypted & ultra-low power


Integrable


Dynamic alerting


Multi-tenant


Scalable


Composable & API first


Low cost


Action management


Resource monitoring

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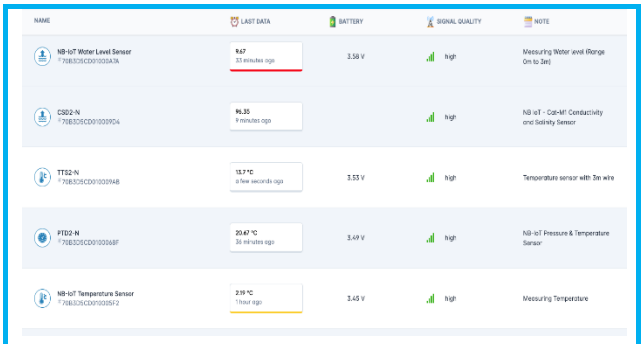
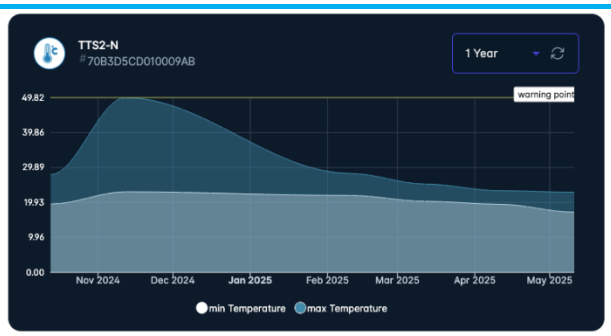


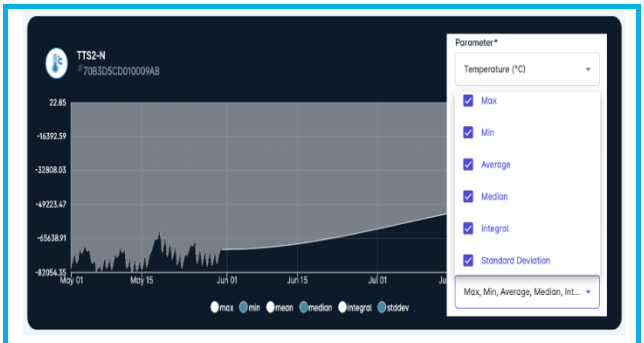
Single-screen visualization of device data



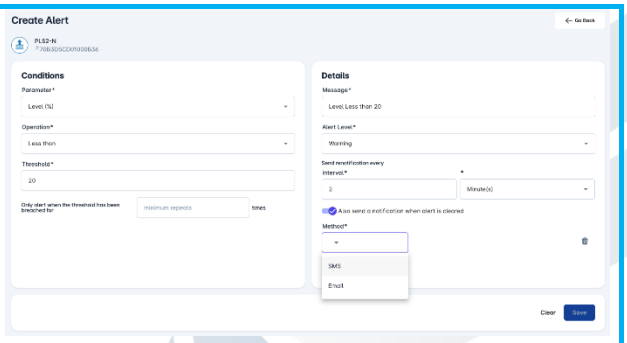
Easy analytic insight into long-term data

Integration-ready Webhook & APIs

Global visualization of device locations with address-level zoom



Customizable aggregations & stats



Multi-channel, rule-based alert management

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INDUSTRIES SERVED

City & Councils

INTEGRATION OPTIONS

10Sorex's solution sets itself apart with its pre-configured and plug-and-play design, eliminating the complexities of configuration, programming, and connection to the platform. This unique approach ensures that users can start monitoring their diesel tanks quickly and easily without any technical hassles. Additionally, 10Sorex offers seamless integratability at both the network and platform levels, allowing for easy integration with any network or visualization/analysis platform. This competitive advantage makes 10Sorex's solution highly adaptable and compatible with existing systems, providing users with flexibility and convenience in managing their diesel resources effectively.

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ORDERING PROCESS

10Sorex offers simple and easy way to order the solution from any location on earth with narrow band cellular coverage. Please visit our sales portal (www.10sorex.com) or contact us to discuss your application. This is the first step to experience a reliable IoT solution at scale.

Purchase the solution online

Learn more about our Software Platform

View the Included Sensor Datasheet

Browse our other solutions

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Integrated IoT Solutions

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